

Authors

A

Abbassian, M. J.	574
Abu-Sharkh, B.	1384
Acharya, S.	514
Adachi, K.	456
Adams, W. R.	1387
Adrados, L. F.	865
Alkire, R. C.	1504, 1781
Allen, T.	1310
Alper, E.	1384
Altwick, E. R.	329
Ammar, M.	170
Amundson, N. R.	426
Andres, R. P.	1164
Ansari, A. M.	1392
Aris, Rutherford	2005
Arkun, Y.	672
Arters, D. C.	1221
Asolekar, S. R.	150
Assink, R. A.	2077
Astarita, G.	1299
Auvil, S. R.	1726

B

Back, D. D.	1789
Balakotaiah, V.	37, 353
Ballal, G.	426
Bamopoulos, G.	763
Barasan, O. A.	1726
Barrdahl, R.	493
Barton, G. W.	1200
Basu, R.	1698
Baumgart, J.	2012
Behic, L. A.	1417
Behrens, R. A.	1894
Bequette, B. W.	849, 1996
Berkman, P. D.	602
Bhandarkar, S.	2063
Bhaskar, G. V.	510
Bhat, S. N.	189
Bhatia, S. K.	969, 1094
Biddulph, M. W.	618
Birdsell, K. H.	123
Bishnoi, P. R.	1718
Biswas, J.	510
Biyani, P.	1747

Blackmond, D. G.	173
Blanch, H. W.	1354, 1585
Bonham, D. B.	465
Bonnet, J. C.	283
Borwankar, R. P.	753
Bossy, A.	996
Boulos, M. I.	567
Brooks, K.	353
Brosilow, C. B.	633
Brown, B. W.	435
Brown, R.	2063
Brown, R. A.	881
Bruggeman, J.	669
Bruno, K.	1431
Buchanan, J. E.	870
Burganos, V. N.	1106
Burgman, J. W.	1649
Burillo, J. C.	865
Burnet, G.	1086
Buscall, R.	239, 1931
Bustos, M. C.	859
Byers, C. H.	1577

C

Calabrese, R. V.	602
Campbell, W. G.	1528
Caneba, G. T.	333
Caprihan, A.	2077
Carbonell, R. G.	1027, 1850
Carpenter, J. K.	1673
Carta, G.	1190
Cassano, A. E.	366
Chan, C. C.	753
Chang, H. C.	705
Chao, K. C.	825, 1773
Charlaix, E.	610
Chein, R.	946
Chen, C. T.	733
Chen, F.	1381
Chen, I. Y.	1539
Chen, J.	140
Chen, J. C.	743
Chen, L. J.	1743
Chen, M. K.	158
Chen, S. B.	1075
Chen, Y. C.	1663
Chen, Y. M.	1043

Chenais, P.	781
Cheng, A. T.	1656
Chiang, A. T.	1910
Chou, M. Y.	1519
Chou, T.	1034
Christian, S. D.	189, 1511
Chu, E.	94
Chung, J. N.	946
Chung, S.	1973
Ciftcioglu, M.	1907
Cinar, A.	2041
Claria, M. A.	366
Cochran, H. D.	170
Coe, S. J.	1922
Collins, N. A.	1211
Concha, F. A.	859
Costa, C. A.	996
Cozewith, C.	272
Crawford, M. D.	2012
Crochet, M. J.	1894
Crowe, C. M.	541
Crundwell, F. K.	1128
Cussler, E. L.	130, 2005

D

D'Antonio, M. C.	447
Dadyburjor, D. B.	173
Dahuron, L.	130
Daskopoulos, P.	2052
Dassori, C. G.	1878
Davis, E. J.	1310
Davis, R. H.	123
De More, L. S.	1922
Debenedetti, P. G.	447, 645, 1211
Denn, M. M.	1051
Densch, B.	333
Denson, C. D.	1894
dePablo, J. J.	1595
Deshpande, P. K.	150
deSwaan Arons, J.	834
Dierickx, J. L.	17
Dixon, D. C.	1931
Dobbins, M. S.	1086
Dogu, T.	1903
Domenech, S.	163
Dribika, M. M.	618

Dudukovic, M. P.	1752
Dukler, A. E.	389
Dupret, F.	1959
Dutta, B. K.	694

E

Eckert, C. A.	1477
Edgar, T. F.	849
Ellis, M. F.	1341
Englezos, P.	1718
English, K. J.	1207
Epstein, M.	1568
Ernst, W. R.	158, 1927, 2012
Estrin, J.	2063
Eubank, P. T.	1229
Evannia, G.	1713

F

Fair, J. R.	1267, 1861
Fan, L.-S.	1043, 1221
Fane, A. G.	1563
Fauchais, P.	567
Fell, C. D.	1563
Fernandez, J. M.	321
Finch, F.	25
Finnerman, D. H.	853
Finnicum, D. S.	529
Fisher, G. D.	873
Fitch, B.	1931
Flagan, R. C.	1249
Flamant, G.	519
Floquet, P.	163
Fogler, H. S.	45, 1761
Font, R.	229
Forney, L. J.	1813, 1927
Fortuin, J. M.	1736
Fredenslund, A.	171, 1937
Friedlander, S. K.	551
Froment, G. F.	17
Fukushima, E.	2077
Funk, G. A.	1361
Furtig, H.	1185
Furusaki, S.	411
Fusillo, R. H.	558

G

Gabbitto, J.	1225, 1931
Gallagher, J. S.	834
Garcia, F.	1916
Gatica, J. E.	209
Georgakis, C.	1287
Georgiou, A.	1287
Georgiou, G.	1233
Georgiou, G. C.	1559
Giarratano, P. J.	2059
Gibilaro, L. G.	1055
Gill, W. N.	1563
Givi, P.	1039
Gmehling, J.	171
Gobie, W. A.	474

Gonzalez, V.	1341
Goochee, C. F.	1747
Govind, R.	1493
Goyal, S. K.	94
Graves, D. J.	483
Greenfield, P. F.	510
Greenkorn, R. A.	223
Grolmes, M. A.	688
Grosser, K.	1027, 1850
Grover, P. D.	1376
Gu, Z. M.	753
Guha, A. K.	1135
Guo, C. J.	1713
Gutloff, E. B.	349
Guyon, E.	610

H

Haas, C. N.	702
Haas, O. W.	1913
Hagan, P. S.	1367, 1373
Haggbloom, K. E.	853, 1634
Haghtalab, A.	803
Hahn, P.	140
Hamer, J. W.	626
Hanna, O. T.	502
Hanratty, T. J.	529, 938
Hansen, J. H.	1937
Harold, M. P.	980, 1361
Harriott, P.	1656
Hartland, S.	335
Harwell, J. H.	1511
Hayhurst, D. T.	1713
Hedman, P. O.	435
Helfferich, F. G.	1615
Herrick, D. E.	669
Herron, C. C.	1267
Herskowitz, M.	1367
Hill, J. C.	173, 1051
Hiller, R. A.	506
Hillewaert, L. P.	17
Hirt, D. E.	326
Hlavacek, V.	209
Ho, K. L.	705
Ho, T. C.	314, 1519
Ho, W. S.	922
Hoefner, M. L.	45
Holder, G. D.	669
Hori, T.	411
Hounslow, M. J.	1821
Howat, C. S.	1
Howell, W. J.	1477
Hrymak, A. N.	403, 2088
Hsieh, J. S.	116
Hsu, C. L.	116
Hsu, J. T.	107
Hu, S.	1225
Hu, Y.	814
Huang, C. C.	1861
Huang, S. H.	2083
Hulin, J. P.	610, 781
Hwang, Y. L.	1615

I

Inoue, H.	1031, 1683
Irazoqui, H. A.	366
Ivie, J. J.	1813
Ivory, C. F.	474

J

Jacob, K. V.	1395
Jang, D. S.	514
Jeelani, S. K.	335
Jensen, K. F.	1341
Jensen, M. K.	107
Joffrion, L. L.	1229
Johnston, R. D.	1200
Jones, C. S.	293
Jones, D. A.	733
Jones, M. C.	2059
Joshi, J. B.	1332

K

Kalbassi, M. A.	618
Kamal, M. R.	94
Kapoor, A.	1913
Karagiannis, A.	2088
Karger, J.	1185
Karri, S. B.	137, 155
Kataoka, T.	1020
Keh, H. J.	1075
Khesghi, H. S.	1373
Kim, B. C.	1221
Kim, K. S.	912
Kim, S. D.	2069
King, R. L.	506
King, R. S.	1585
Kirou, V.	283
Klotz, W. L.	1403
Knaebel, K. S.	1409, 1486
Ko, T. T.	1164
Kocamustafaogullari, G.	1539
Kodas, T. T.	551
Komori, S.	932
Koo, Y. M.	1006
Kopatsis, A.	1275
Kopinsky, J.	2005
Kousaka, Y.	1249
Kramer, M. A.	25, 1441
Kravaris, C.	1119, 1803
Krueleskie, B. K.	1267
Kubic, W. L.	583, 1581
Kucukada, K.	1903
Kumar, R.	150
Kumar, S. K.	645
Kumazawa, H.	1215
Kuo, C.	499
Kuo, M.	1034

L

Lai, C. C.	1757
Lake, L. W.	1607

Landauro, J.	964
Landman, K. A.	239, 1931
Leary, K. J.	263
Lee, C. H.	840
Lee, J. P.	37
Lee, M. J.	825, 1773
Lee, S.	144
Lee, W.-C.	2083
Lee, W.-K.	676
Leighton, D. T.	1709
Leland, T. W.	1743
Lenhoff, A. M.	2052
Leu, R. J.	1615
Leung, J. C.	688, 1030, 1568
LeVan, M. D.	996, 2080
Levec, J.	1027
Levelt Sengers, J.	834
Li, D.	862
Li, N. N.	753
Lim, L.	2019
Limbach, K. W.	305
Lindhjem, C.	329
Lindner, D.	1691
Lindstrom, T. H.	383
Lira, C. T.	1477
Lloyd, J. R.	1627
Luss, D.	37, 353, 1663
Luyben, W. L.	1287
Lynch, D. T.	1528
Lyons, S. L.	938

M

Macchietto, S.	955
MacDonald, R. J.	1
Machuga, S. C.	1057
Macosko, C. W.	1057
Maduabueke, G. I.	955
Magiliotou, M.	1043
Mah, R. S.	1321
Majumdar, S.	1135
Mallinson, R. G.	840
Marshall, V. R.	1821
Mathur, V. K.	137, 155
Matz, M. J.	1486
Mavridis, H.	403
McClellan, A. K.	9
McCoy, B. J.	341, 1225, 1931
McCready, M. J.	1431, 1709, 1789
McDonald, K. A.	1996
McGrady, E. D.	2073
McHugh, M. A.	9
McMurtry, P. A.	1039
Metcalfe, I. S.	195, 1048
Metzner, A. B.	1894
Michaels, J. N.	263
Middleman, S.	1455
Middya, U.	694
Midje, H. L.	1057
Mifflin, R. T.	1839
Mills, P. L.	1752
Mishra, B. K.	684

Mohan, K.	1493
Mohanty, R.	2063
Morikawa, H.	1683
Morris, R.	723
Morrison, G. L.	1922
Motard, R. L.	763
Muller, C.	519
Murakami, Y.	932
Myers, A. L.	397, 1275, 1887, 1931

N

Nakamura, R.	456
Narasimhan, S.	1321
Nass, K. K.	1257
Nath, R.	763
Newman, B. L.	1190
Ng, K. M.	1361
Nguyen, H. V.	1249
Nguyen, T.	1200
Nikolaides, C.	938
Niksa, S.	790
Novak, C. F.	1607

O

Ocone, R.	1299
Oger, L.	610
Okamoto, J.	411
Okubo, T.	1031
Okuyama, K.	1249
Olague, N. E.	1907
Orazem, M. E.	465
O'Rear, E. A.	1511
Oyeleye, O. O.	1441

P

Pafford, W. F.	1922
Pai, C.	873
Palanki, S.	1119
Palazoglu, A. N.	1996
Papanastasiou, A. C.	1559
Paripatyadar, S. A.	743
Park, S.	1550
Parrish, J. R.	633
Patel, M. R.	1229
Paterson, W. R.	147
Peanasky, J. S.	1057
Pearlstein, A. J.	1381
Pedersen, K.	1937
Peker, H.	1903
Perkins, J. D.	1200
Perona, J. J.	1398, 1577
Peters, C. J.	834
Pfeifer, H.	1185
Pibouleau, L.	163
Pinjala, V.	1663
Pirkle, J. C.	1373
Plona, T. J.	610
Potter, O. E.	55, 69, 81
Powers, G. J.	558
Prasad, R.	177

Pratsinis, S. E.	912
Prausnitz, J. M.	814, 1354, 1585, 1595
Prud, R. K.	326

R

Rafi, F.	698
Raghava Rao, K. S.	1332
Raina, G. K.	1376
Ramarao, B. V.	253
Ramirez, W. F.	1550
Randolph, T. W.	1354
Ranz, W. E.	1057
Rao, D. P.	1157
Rasmussen, P.	171
Rastogi, A.	1417
Ray, P.	694
Rebenfeld, L.	326
Rege, S. D.	1761
Renon, H.	170
Rewatkar, V. B.	1332
Reyes, S. C.	314, 1373
Richardson, J. T.	743
Richenberg, C. B.	626
Richon, D.	171
Richter, R.	1185
Rigopoulos, K.	2041
Rizvi, S. S.	1387
Rodrigues, A. E.	996
Rodriguez, F.	865
Rolchigo, P. M.	483
Romero, A.	1916
Ronningsen, H.	1937
Roscher, W.	1185
Rousseau, R. W.	1403
Rudisill, E. N.	2080
Rueff, R. M.	1468
Ruiz, G.	502
Ryall, R. L.	1821
Rybolt, T. R.	1207

S

Sada, E.	1215
Saito, K.	411
Salinger, A.	1275
Sandall, O. C.	502
Sandelin, P. M.	853
Sandler, S. I.	1065
Sandmann, C. W.	2030
Sane, R. C.	383
Savage, D. W.	922
Saxena, S. C.	1919
Schaeffer, S. T.	1740
Schechter, R. S.	1607
Schmidt, L. D.	1146
Schowalter, W. R.	1051, 1839
Schrage, D. S.	107
Schumpe, A.	1691
Schwartzentruber, J.	171
Seckner, A. J.	9
Seidel, R.	1185

Selman, J. R.	1949
Sengupta, A.	417, 1698
Sengupta, A. K.	2019
Shah, D. B.	1713
Shah, Y. T.	669, 1878
Sharma, M. M.	684
Shealy, G. S.	1065
Shen, G.	676
Shibahara, Y.	1020
Shin, H.	1409
Shing, K. S.	1973
Shoachi, M.	1927, 2012
Shu, X.	2041
Sides, P. J.	1649
Sidhoum, M.	417
Simons, G. A.	167
Sirkar, K. K.	177, 417, 1135, 1698
Slattry, J. C.	140, 862
Sloan, E. D.	1468
Smith, D. M.	1907
Smith, J. M.	658, 1225
Smith, P. J.	435
Smoot, L. D.	435
Smyrl, W. H.	723
Sorrentino, F.	171
Sotirchos, S. V.	1106
Sridhar, T.	55, 69, 81
Stacy, A. M.	263
Steen, P. H.	1673
Stein, F. P.	583
Stewart, W. E.	1030
Streett, W. B.	1387
Sugo, T.	411
Sundaram, K. M.	321
Sundaresan, S.	195, 1048, 1211, 1850
Suresh, A. K.	55, 69, 81
Svrcek, W. Y.	1417
Sylvester, N. D.	1392
Szczepanski, R.	955

T

Tadmor, Z.	1943
Taffin, D. C.	1310
Takahashi, K. M.	1504, 1781
Talu, O.	397, 1887, 1931
Tamura, T.	456
Tan, C. S.	1757

Tao, T. M.	1722
Tatterson, G. B.	506, 1922
Tavlarides, L. L.	283
Taylor, T. W.	1341
Teja, A. S.	1740
Thompson, V. L.	223
Tien, C.	173, 253
Tierney, J. W.	1878
Tijero, J. F.	865
Tirrell, M. V.	698
Tobias, C. W.	1981
Tomida, T.	341
Tondeur, D.	996
Triday, J.	658
Tsao, G. T.	2083
Tseng, P. C.	922
Tsotsis, T. T.	383
Tsouris, C.	283
Tucker, E. E.	189

U

Uezu, K.	411
----------	-----

V

Vadivel, R.	1919
Valenzuela, D. P.	397
Vanderschuren, L.	1959
Vardelle, A.	567
Vardelle, M.	567
Vera, J. H.	803
Verma, A. K.	1157
Vermeulen, D. P.	1736
Vigneaux, P.	781
Viljoen, H. J.	209
Vlachopoulos, J.	403, 2088
Vleeschhouwer, P. H.	1736
Voilley, A.	171
Vrentas, C. M.	347, 1423
Vrentas, J. S.	347, 1423

W

Wachi, S.	1683
Wachter, J. A.	1164
Wait, R.	964
Waller, K. V.	853, 1634
Walletzko, N.	1146

Wankat, P. C.	1006
Wanke, S. E.	1528
Wasan, D. T.	753
Watson, A. T.	1722
Webster, G. H.	1398
Wei, J.	305
Weil, S. A.	574
Weimer, A. W.	1055, 1395
Werner, M.	1691
Whitaker, S.	679
White, E. T.	293
White, L. R.	239, 1931
Whitney, G. M.	1981
Wiley, D. E.	1563
Wilkes, J. O.	1559
Wilson, S. R.	1732
Wojcik, M.	692
Wong, D. S.-H.	144
Wu, J.	1511

Y

Yang, H. Q.	1627
Yang, K. T.	1627
Yang, R. K.	293
Yang, R. T.	1913
Yeckel, A.	1455
Yesavage, V. F.	1468
Yih, S.	499
Yoshida, H.	1020
Yoshikawa, Y.	1215
Yu, C. C.	1833
Yu, H.	1673
Yu, Y. H.	2069
Yuh, C. Y.	1949

Z

Zabaras, G. J.	389
Zalkow, L. H.	1740
Zhang, S. H.	1310
Ziff, R. M.	2073
Zollars, R. L.	733
Zollweg, J. A.	1387
Zuromski, B.	2063
Zwiebel, I.	397
Zygourakis, K.	426, 2030

Subjects

A

Absorption, 329, 1781
 Absorption, Chemical Reaction, 1190
 Absorption, Gas, 1789
 Absorption, Oxygen, 1384
 Absorption, Simultaneous, 1215
 Activated Carbon, 1403, 1656, 1691
 Activity Coefficient, 171, 1257, 2095
 Activity, Catalyst, 305
 Activity, Ionic, 803
 Adaptive Control, 676
 Adjacency Matrix, 1607
 Adsorber Breakthrough, 1913
 Adsorption, 263, 397, 996, 1031, 1094, 1207, 1409, 1486, 1747, 1861, 1887, 1931, 2080
 Adsorption Equilibrium, 2080
 Adsorption Solution Theory, 1887
 Adsorption, Fixed-Bed, 996
 Adsorption, Gaseous, 1887, 1931
 Adsorption, Vapor, 1403
 Aerosol, 253, 551
 Aerosol Evaporation, 1310
 Aerosol Reactor, 1249
 Aggregation, 1821
 Agitated Tanks, 1922
 Air-Water System, 137
 Alkaloid Separation, 1740
 Alkanes *n*-, Mixtures, 834
 Alumina, 669, 15:1, 2012
 Aluminum Chloride, 669, 1086
 Aluminum Reduction, 1649
 Amidoxime, 411
 Amino Acids, Solubility, 1257
 Analytical Predictor, 676
 Andrussov Process, 1146
 Annular Flow, 389
 Anthraquinone, 9, 10, 865
 Aqueous Electrolyte Solutions, 1718
 Aqueous Solution, 1065, 1698
 Aqueous Two-Phase Systems, 1585
 Artificial Intelligence, 25, 558
 Asymmetric Membrane, 417
 Asymptotic Analysis, 1726
 Asymptotic Solution, 1732
 Atmospheric Dispersion, 223
 Auto-Catalytic, 69
 Automobile Exhaust Catalyst, 195, 1048
 Axial Flow, 2083

B

Bacteria, 1233
 Batch Sedimentation, 229, 859
 Bed Expansion, 1221
 Bed Particle Speed, 1919

Benzaldehyde Oxidation, 1034
 Benzene Pyrolysis, 1813
 Benzene, Diffusion, 1713
 Bethe Trees, 684
 Bidisperse, 610
 Bidispersed Catalysts, 1903
 Bifurcation, 383, 705
 Bioreactor, 293
 Bioseparations, 483, 1585
 Biotechnology, 1233, 1550
 Boundary Layer, Turbulent, 529
 Breakthrough, 1747, 1861
 Breakup, 2073
 Broyden's Method, 873
 Bubble Chord Length, 2069
 Bubble Column Reactor, 1034
 Bubble Curves, 834
 Bubble Flow, 1392
 Bubble Velocity, 2069
 Bubble, Coalescence, 862
 Bubbles, 1981
 Bubbling, Fluidized Beds, 1055, 1395
 Burnett Method, 1229

C

Capillary, 1732
 Capillary Pressure, 684
 Capillary Rise, 155
 Carbochlorination, 1086
 Carbon Black, 1813
 Carbon Dioxide, 1387
 Carbon Dioxide Absorption, 922
 Carbon Dioxide, Supercritical, 1354
 Carbon Monoxide Oxidation, 195, 1048
 Carbon Powders, 1395
 Carbon, Activated, 1403, 1656
 Carbonate, Promoted, 922
 Carbonation, Lime, 150
 Carbonyl Sulfide, 158
 Cascade Control, 1833
 Catalysis, Redox, 1781
 Catalysis, Ziegler-Natta, 698
 Catalyst, 969
 Catalyst Activity, Nonuniform, 305
 Catalyst Deactivation, 692, 1528, 1903
 Catalyst Dispersion, 426
 Catalyst Evaluation, 1519
 Catalyst Particle, 1916
 Catalyst Regeneration, 1528
 Catalyst Sulfiding, 314
 Catalyst, Heterogenized Homogeneous, 1034
 Catalyst, High Surface Area, 263
 Catalysts, Automobile Exhaust, 195
 Catalytic Gasification, 426
 Catalytic Reaction, 383, 969, 980, 1225, 1361, 1691
 Catalytic Reaction, Gas-Liquid, 980, 1361
 Causality, 1441
 Centrifugal Splash, 456
 Channel Structure, 45
 Chaos, 333
 Char Gasification, 426, 2030
 Chelating Resin, 411
 Chemical Absorption, 1215
 Chemical Vapor Deposition, 1627
 Chloride-Chlorate Reaction, 1927
 Chlorination, 366, 669
 Chlorine Diffusion, PVC, 1683
 Chlorine Sorption, PVC 1683
 Cholesterol Oxidation, 1354
 Chromate Removal, 189, 2019
 Chromatography, 1006, 1615, 1747, 2083
 Clarification, 1931
 Closure, 679
 Clusters, 645, 1211
 Coagulation, 912
 Coal, 353
 Coal Ash Utilization, 1086
 Coal Devolatilization, 790
 Coal Gasification, 435
 Coalescence, 140, 862
 Coating, 349, 456, 1673, 1732
 Coherence, 1615
 Coils, 2052
 Coke Deposition, 1185
 Colloid, 733, 1075, 1839
 Combustion, Spontaneous, 353
 Combustor, 514
 Compressibility Factors, 1229
 Compressible Fluid, 688
 Compression, 859
 Compression Zone, 229
 Computer-Aided Design, 955
 Concentration Polarization, 1563
 Concentration Wave, 1615
 Condensation, 2059
 Confluence Equation, 1441
 Conical Thickener, 1931
 Consolidation, 239, 859
 Contact Line, Dynamic, 1894
 Contactor, Gas-Liquid, 499
 Continuous Electrophoresis, 474
 Continuous Mixtures, 1299, 1519
 Continuous Thermodynamics, 574
 Control, 672
 Control Structure, 853
 Control Structure Transformation, 1634
 Control, Adaptive, 676

Control, Cascade, 1833
 Control, Distillation, 853, 1634
 Control, Dynamic Matrix, 1287
 Control, Inferential, 633
 Control, Model-Based, 633
 Control, Multivariable, 849
 Control, Nonlinear, 633, 1119, 1803, 2041
 Control, Optimal, 1550
 Control, Optimizing On-Line, 626
 Control, Polymerization Reactor, 272
 Convection, 881
 Convection, Forced, 1030
 Conversion Distribution, 1683
 Copolymer Property Control 272
 Corresponding States Principle, 1743
 Corrosion, 723
 Cosolvent Effects, 1354
 Critical Conditions, 1211
 Critical Flow, 688, 1568
 Critical Point, 645
 Critical Pressure Gradient, 326
 Critical Region, 1595
 Crude Oils, 1937
 Crystal Growth, 881, 1627, 1821, 2063
 Curved Tubes, 2052
 CVD, 1627
 Cyclic Reduction, 964
 Cyclohexane, 55, 69

D

Data Fitting, 1722
 Data Reconciliation, 1, 541, 873
 Deactivation Kinetics, 692
 Deactivation, Catalyst, 1903
 Decane, 1387
 Deconvolution, 1752
 Deep Bed Filtration, 1761
 Degussa Process, 1146
 Dehydrogenation, 1225
 Density Maxima, 447
 Deposition, 253
 Design, 551, 558, 763
 Design Flexibility, 144, 583
 Design Reliability, 583
 Design, Optimal, 144
 Desorption, 1747, 1861
 Devolatilization, Coal, 790
 Dialysis, 189
 Differential Scanning Calorimetry, 1468
 Diffusion, 81, 347, 1094, 1455, 2005
 Diffusion, Zeolites, 1713
 Diffusion Resistance, 1020
 Diffusion, Intra-Particle, 679
 Diffusion, Knudsen, 1907
 Diffusion, Multicomponent, 1106
 Diffusion-Induced Separation, 1409
 Diffusion-Limited Adsorption, 1913
 Diffusivities, 1649
 Dihydroxyanthracene, 9, 10, 865
 Dilute Solution, 170, 1581

Direct Contact Heat Transfer, 1376
 Discrete Programming, 163
 Discrete Structural Models, 2030
 Dispersion, 341, 602, 610, 946, 1398, 1943, 2052
 Dispersion Throughput, 335
 Dispersion, Atmospheric, 223
 Dispersion, Gas, 1922
 Dispersion, Laminar, 1423
 Dispersion, Particle, 514
 Dissociation, Heat, 1468
 Dissolution, 45, 1128, 1607, 2005, 2012
 Distillation, 144, 147, 763, 964, 1267
 Distillation Control, 853, 1287, 1634
 Distillation, Multicomponent, 618, 1164
 Disturbance Predictor, 676
 Disturbance Rejection, 1833
 Doping, 1455
 Double Layer Forces, 140
 Double Layer, Electric, 1075
 Drainage, Foam, 2077
 Drop Size Distribution, 283, 602
 Droplet Explosion, 1310
 Droplet Formation, 1577
 Droplet, Rigid, 694
 Drops, 329
 Dusty-Gas Model, 1106
 Dynamic Contact Line, 1894
 Dynamic Matrix Control, 1287
 Dynamic Processes, 1321
 Dynamics, 335, 1663

E

Eddy Size, 938
 Effectiveness, 1361
 Effectiveness Factor, 692, 1757, 1916
 Efficiency, Multicomponent, 618
 Electric Double Layer, 1075
 Electric Field, 483, 1577
 Electrochemistry, 1949
 Electrode, 1949
 Electrolyte, 803, 1504, 1649, 1718
 Electrophoresis, 474, 483, 1675
 Electrostatic Forces, 140
 Elution Chromatography, 1006
 Elution Curve, 1747
 Emulsion, 840, 1761
 Energetic Heterogeneity, 397
 Energy, Chemical Storage, 519
 Enhanced Diffusion, 1709
 Enhancement Factor, 694
 Entrained Flow Reactor, 435
 Enzyme Reactions, 1354
 Enzyme, Immobilized, 293, 692
 Equation of State, 825, 1773
 Equation-Based Simulation, 955
 Equilibrium, Vapor-Liquid, 574
 Equilibria, Multicomponent, 702
 Errors in Process Measurements, 541, 1321
 Estimation, On-Line, 626

Ethane, 321, 366, 834
 Ethylene-Propylene Copolymers, 272
 Evaporation, 502
 Evaporation Retardation, 1310
 Evaporator, 1539
 Excess Gibbs Energy, 1595
 Exothermic Reactions, 1367, 1373
 Expert Systems, 25
 Expression, 1233
 Extraction, 130, 177, 283
 Extraction, Supercritical, 658, 1740
 Extrudate Swell, 1559, 2088

F

Falling Film, 493, 499, 502, 1539
 Fault Diagnosis, 25
 Field-Flow Fractionation, 341
 Film-Diffusion Resistance, 1020
 Film Flow, 1539
 Film, Wavy, 493
 Films, Thin, 1511
 Filtering, 1341
 Filtration, 253
 Filtration, Deep Bed, 1761
 Finite Element Method, 403, 1959, 2088
 Fixed-Bed, 314, 996, 1486, 1861
 Fixed-Bed Adsorption, 996
 Flash Calculations, 170
 Flash Unit Operation, 1
 Flashing Flow, 688, 1030
 Flocculated Suspension, 239
 Flocculation, 1839
 Flooding, 283, 389
 Flow Pattern, Stirred Tank, 932
 Flow regime Maps, 137
 Fluidization, 519, 1043, 1055, 1221, 1919
 Fluidized Bed, High Pressure, 1395
 Fluidized Bed, Liquid, 1157
 Fluidized Bed, Tapered, 1398
 Fluidized Bed, Three-Phase, 2069
 Fluids, Polar, 1773
 Foam, 326, 2077
 Foam Bed, 150
 Foam Drainage, 2077
 Foam Stabilization, 150
 Fountain Flow, 94, 403, 1959
 Fractional-Order Reaction, 1916
 Fragmentation, 2073
 Free Convection, 209
 Free Surface Flows 403, 1894
 Free Surface Problem 1959
 Fuel Cell, 1949
 Fugacity Coefficient, 170
 Full-Newton Iteration, 1559
 Fuzzy Sets, 583

G

Gallium Arsenide, 465
 Galvanic Current, 723

Gas Absorption, 1789
 Gas Cavities, 1922
 Gas Evolution, 1981
 Gas Holdup, 1043
 Gas Hydrates, 1718
 Gas Mixtures, 397, 1931
 Gas Separation, 417, 1409, 1486, 1726, 1910
 Gas Separation Process, 1486
 Gas Treating, 922
 Gas-Liquid, 55, 1504
 Gas-Liquid Catalytic Reaction, 980, 1361
 Gas-Liquid Contactor, 499
 Gas-Liquid Flow, 389, 1431, 1789
 Gas-Liquid Reaction, 158, 922, 1384
 Gas-Solid Reaction, 519, 669, 1878, 2030
 Gasification, Char, 426
 Gasification, Coal, 435
 Gauze Reactors, 1146
 Geometric Control Theory, 1119
 Gibbs Free Energy, 1065
 Gradual Breakthrough, 2019
 Graph Models, 1441
 Graph Representation, 1607
 Graph Theory, 17
 Gravity Settlers, 335
 Gravity Thickener, 239, 1931
 Green's Function, 347
 Gross Error, 541, 1321
 Group Contribution Model, 1477

H

Hall/Heroult Electrolyte, 1649
 HCN Synthesis, 1146
 Heat Capacity, 1468
 Heat Pipe, 743
 Heat Transfer, 107, 881, 1043, 1157, 1381, 2059
 Heat Transfer, Direct Contact, 1376
 Heat Transfer, Plasma, 567
 Heat Transfer, Turbulent, 502, 1030
 Heating, 502
 Henry's Law, 1207
 Heterogeneous Catalysis, 698
 Heterogeneous Ideal Adsorbed Solution, 397
 Heterogeneous Surface, 723
 Heterogenized Homogeneous Catalyst, 1034
 Heuristically-Guided Search, 1607
 High Purity Distillation, 1996
 Hindered Settling, 123
 Holdup, 1027, 1221
 Holdup, Gas Phase, 2069
 Holdup, Liquid-Liquid, 283
 Hollow Fiber, 130, 177, 293, 411, 417, 1135
 Homogeneous Reaction, 1781

Homogeneous Turbulence, 1039
 Hydrate, 1468, 1718
 Hydrodynamics, Tray, 1267
 Hydrogen, 321
 Hydrolysis, COS, 158
 Hydrometallation, 305
 Hydrotreating, 305, 314
 Hydroxylamine Production, 1691
 Hyperbolic System, 229
 Hysteresis, 1027
 HZSM-5, 1713

I

Immiscible Liquids, 155
 Immobilized Enzyme, 692
 Impedance, 465, 1949
 Impeller Speed, Critical, 1332
 Inferential Control, 633
 Infinite-Dilution Properties, 1973
 Injection Molding, 94
 Injection Molding, 403, 1057, 1959
 Instability, Marangoni, 705
 Instability, Ribbing, 456
 Integration, 147
 Interaction, 1833
 Interaction Measure, 672, 849
 Interfacial Area, 1504
 Interfacial Oxygen Transfer, 195
 Interfacial Polymerization, 1057
 Interfacial Tension, 155
 Interfacial Waves, 1431
 Intermittency, 333
 Intra-Particle Diffusion, 679, 1020
 Ion Exchange, 702, 1020, 1615, 2019
 Ionic Activity, 803
 Iron Impurity, 1128
 Iron-Chelates, 1215
 Iso-Active Solvent Theory, 1275

J

Jet, Newtonian, 1559, 2088

K

Kalman Filter, 1321
 Kerogen, 658
 Kidney Stones, 1821
 Kinetic Lumping, 1299, 1519
 Kinetics, 69, 81, 1656
 Kinetics, Anthraquinone Reduction, 865
 Knudsen Diffusion, 1907

L

Lactase, 293
 Laminar Dispersion, 1423
 Laminar Transient Flows, 1894
 Laminarization, 529
 Laplace Equation, 1577
 Latent Heat, 2059
 Latex, 733

Lead Oxide, 1225
 Leakage, Liquid Membranes, 753
 Light-Scattering, 1310, 1585
 Lignin, 116
 Likelihood Ratios, 1321
 Limit Point, 383
 Linear Regression, 1722
 Linear Stability Theory, 1431
 Liquid Film, 81, 1539
 Liquid Holdup, 870
 Liquid Membrane, 753, 1135, 1698, 1709
 Liquid Metals, 1477
 Liquid State, 447
 Liquid-Liquid Dispersion, 335, 602
 Liquid-Liquid Equilibria, 1595
 Liquid-Liquid Extraction, 283
 Liquid-Liquid System, 781
 Liquid-Phase, 69
 Local-Composition, 170, 803
 London-van der Waals Forces, 140
 LPG, 321
 Lumping, 1299, 1519

M

Magnesium Sulfate, 519
 Malfunction Diagnosis, 1441
 Marangoni Instability, 705
 Masking, 1455
 Mass Transfer, 55, 81, 116, 329, 493, 694, 881, 1157, 1190, 1221, 1267, 1504, 1649, 1691, 1781, 1922, 1981
 Mass Transfer, Amomalous, 1403
 Mass Transfer, Droplet, 1310
 MCVD Process, 912
 Mechanically Agitated Reactors, 1332
 Melt Spinning, 1673
 Membrane, 177, 1726
 Membrane Reactor, 293, 1493
 Membrane Separation, 1031, 1563
 Membrane, Liquid, 753, 1135, 1698, 1709
 Metal Processing, 1673
 Metal, Support Interaction, 195, 1048
 Metals, Liquid, 1477
 Methane Addition, 321
 Methyl Linoleate, 1387
 Micellar-Enhanced Ultrafiltration, 189
 Micelles, 130, 814
 Michaelis-Menten Kinetics, 1757
 Micro-Gravity, 137, 155
 Microelectrodes, 1981
 Microelectronics, 1455
 Microemulsion, 814
 Microporous Hollow Fiber, 177
 Microreactor, 1417
 Minimum Reflux, 1164
 Mixer, Static, 602
 Mixing, 506, 1057, 1332, 1398, 1943, 2063

Mixing Layer, 946
 Mixing Tee, 2063
 Mixing Times, 932
 Mixtures, 1773
 Mixtures, *n*-Alkanes, 834
 Mixtures, Complex, 1519
 Mixtures, Continuous, 1299
 Mixtures, Gas, 397
 Model-Based Control, 633
 Molecular Thermodynamics, 814
 Molecular Weight, 840
 Molecular Weight Distribution, 1341
 Molten Salt, 1086
 Moment, 2083
 Moment Analysis, 1931
 Moment Method, 341
 Monocrotaline, 1740
 Monodisperse Aerosol, 551
 Monomer Distribution, 733
 Monte Carlo Simulation, 1528
 Morphology, 698
 Multicomponent Adsorption, 1861
 Multicomponent Diffusion, 1106
 Multicomponent Distillation, 1164
 Multicomponent Equilibria, 702
 Multiphase Equilibria, 1937
 Multiphase Flow, 137
 Multiphase Systems, 1267
 Multiple Feed Columns, 1164
 Multiplicity, 353, 969, 1663
 Multiprocessors, 964
 Multivariable Control, 849, 1287

N

Natural Convection, 353, 1627
 Network Model, 45, 1761
 Neutralization Reaction, 1020
 Newtonian Jet, 1559
 Nitric Oxide, 1215
 Nitric Oxide Reduction, 1048
 Nitrogen Oxides, 1190
 NMR, 1185
 NMR Imaging, 2077
 Noisy Data, 1752
 Nonideal Gas, 1568
 Non-Newtonian Fluid, 1051, 1839
 Nonrandom Factors, 803
 Nonadiabatic Reactor, 1367, 1373
 Nonisothermal CSTR, 333
 Nonlinear Control, 1119, 1287, 1803, 2041
 Nonlinear Programming, 163
 Nonlinear System Stabilization, 2041
 Nonlinearity, 1996
 NO_x, 1190
 Nuclear Magnetic Resonance, 1185
 Nuclear Magnetic Resonance Imaging, 2077
 Nucleation, 1821, 2063
 Nucleation, Homogeneous, 1249
 Numerical Flow Simulation, 1894

Numerical Methods, 1839
 Nyquist Diagram, 1949

O

Oil Shale, 658
 Oil, Fossil Fuel, 574
 Oil-Water, 781
 Operating Holdup, 870
 Optical Fibers, 912
 Optimal Control, 1550
 Optimal Design, 144
 Optimal Synthesis, 163
 Optimization, 167, 305, 763, 1233
 Orbitally Stable Steady States, 1736
 Oscillatory Flow, 1709
 Oxidation, 55, 69
 Oxygen Absorption, 1384
 Oxygen Bleaching, 116
 Oxygen Transfer, Interfacial, 1048

P

Packed Bed, 679, 1850
 Packed Columns, 870
 Packed-Bed Reactor, 1663
 Packing, 610
 Packing, Ordered Spheres, 1907
 Parallel Algorithms, 964
 Parameter Estimation, 1, 676
 Partial Molar Properties, 1973
 Partial Wetting, 980
 Partially-Ordered Fluids, 814
 Particle Capture, 1761
 Particle Diffusion, 912
 Particle Dispersion, 514, 946
 Particle Dynamics, 567
 Particle-Size Distribution, Control, 1249
 Particulates, 1157
 Partitioning, 1585
 Passage Distribution Functions, 1943
 Penetration, 1781
 Peng-Robinson Equation, 2059
 Percolation Theory, 698
 Periodic Operation, 2041
 Periodic Photo-Irradiation, 1683
 Permeability, 326
 Permeator, 417
 Permselective, 1493
 Perturbation Solution, 1423
 Phase Behavior, 9
 Phase Behavior, *n*-Alkanes, 834
 Phase Diagrams, 814
 Phase Equilibria, 170, 825, 1065, 1387
 Photo-Chlorination, PVC, 1683
 Photochemical Reactors, 366, 1381, 1683
 Planar-Flow Melt-Spinning, 1673
 Planning, 558
 Plant Performance, 1
 Plant Safety, 25
 Plasma Jet, 567

Polar Fluids, 825, 1743, 1773
 Pole Placement, 1803
 Pollution Control, 1878
 Polydisperse, 123
 Polymer Processing, 94, 1959, 2088
 Polymerization, 698, 840, 1057, 1341
 Polymerization Reactor, Control, 272
 Polymerization, Interfacial, 1057
 Polymers, 1051, 1839
 Polystyrene, 9
 Population Balance, 1821, 2073
 Pore Networks, 1106
 Pore Size Distribution, 684
 Pore Structure, 426
 Pore Structure Evolution, 2030
 Pore Volume, 1094
 Porous Carbonates, 45
 Porous Electrode, 1504
 Porous Glass, 1031
 Porous Media, 209, 326, 610, 684, 1094, 1106, 2005
 Porous Sorbents, 167
 Potential Distribution, 723
 Powder Production, 1249
 Powders, 1511
 Power Consumption, 506
 Precipitation, 1607, 2005
 Pressure Drop, 510
 Pressure Swing Adsorption, 1409, 1486, 1910
 Probability Density Functions, 1039
 Process Control, 1833, 1996
 Process Decomposition, 25
 Process Design, 558, 583, 1910
 Process Measurement, 541
 Process Modeling, 1634
 Process Simulation, 955
 Process Synthesis, 763
 Promoted Carbonate, 922
 Propane Pyrolysis, 1417
 Propanol-Water, 171
 Protein Secretion, 1550
 Proteins, 130
 Pulp, 116
 Pulsing, 1850
 Purge Operations, 558
 Purging, 1486
 PVT Data, 1229
 Pyrolysis, 17, 321, 1656
 Pyrolysis, Kinetics, 1417

Q

Qualitative Simulation, 1441

R

Radial Flow, 2083
 Random-Pore Models, 2030
 Rapid Solidification Process, 1673
 Reaction Injection Molding, 1057
 Reaction, Nonpremixed, 1039

Reactor Control, 2041
 Reactor Design, 1927
 Reactor Dynamics, 333
 Reactor Modeling, 1367, 1373
 Reactor Stability, 1736
 Reactor, Aerosol, 551, 1249
 Reactor, Batch, 1341
 Reactor, Bubble Column, 1034
 Reactor, Catalytic, 1146
 Reactor, Continuous Stirred, 840
 Reactor, Fed-Batch, 1550
 Reactor, Fixed-Bed, 314, 1367
 Reactor, Fast Kinetics, 1417
 Reactor, Gas-Liquid, 158
 Reactor, Gasification, 435
 Reactor, Membrane, 1493
 Reactor, Packed-Bed, 1663
 Reactor, Packed-Bed Immobilized-Cell, 626
 Reactor, Photochemical, 1381
 Reactor, Polymerization, 272, 840
 Reactor, Sodium Heat Pipe, 743
 Reactor, Trickle Bed, 1027, 1752, 1931
 Reactor, Tubular, 1373
 Recombinant Proteins, 1233
 Reconciliation Data, 873, 1634
 Reflections, Method, 1075
 Reflux Cooling, 733
 Reforming, 743
 Regeneration, Activated Carbon, 1656
 Residence Time Distribution, 1752
 Rest Time, Bubble, 862
 Retrograde Solubility, 645
 Rheology, 94
 Ribbing Instability, 456
 Robustness 1119, 1200, 1996
 Roll Coating, 456
 Roll Waves, 1431
 Rollup, 1913
 Rotation, 1627
 Rubber and Plastics Mixing, 1943
 Runaway, 1736

S

Salt, molten, 1086
 Scale-Up, 1006
 Scaling, 1200
 Seawater, Uranium from, 411
 Sedimentation, 123, 229, 239, 859, 1931
 Selectivity, 1927
 Selectivity, Limiting, 1887
 Semiconductor, 465, 1128
 Sensitivity, Process, 672
 Separation Processes, 9, 341, 483, 1006, 1698, 1709
 Separation, Gas, 417, 1409
 Separation, Membrane, 753, 1135, 1563, 1726
 Separation, Multistage, 964
 Separation, Nonsharp, 763

Series Expansion, 2083
 Setpoint Transmittance, 849
 Settlers, Gravity, 335
 Shale, Oil, 658
 Shape Factors, 1743
 Sieve Deterioration, 1185
 Silicalite, 1713
 Silicon, 1455
 Simulation, 1973
 Simulation, Equation-Based, 955
 Singular Values, 1200
 Sintering, 610, 1528
 Slide Coater, 349
 Slip Boundary Condition, 94
 Slurry, 1221
 Slurry Reactor, 150, 1691
 SO₂ Removal, 1878
 Sodium Dithionite, 865
 Sodium Heat Pipe Reactor, 743
 Solid-Liquid Equilibria, 1937
 Solidification, 881
 Solubility, 55
 Solubility, Amino Acids, 1257
 Solubility, Retrograde, 645
 Solution Theory, 170
 Solution Thermodynamics, 1275, 1477
 Sorption, 1511
 Sound and Pressure Spectra, 1922
 Sphalerite, 1128
 Spherical Packings, 1907
 Splines, 1722
 Spontaneous Combustion, 353
 Spray, 329
 Stability, 447, 1850
 Stability, Hydrodynamic, 1431
 Stability, Reacting System, 209
 Stability, Reactor, 1736
 State Estimation, 1341
 State Feedback, 1803
 Static Mixer, 602
 Statistical Fluctuations, 1581
 Statistical Mechanics, 1581
 Statistics, Multivariate, 541
 Steric, 341
 Stirred Tank, Mixing, 932
 Stochastic Modeling, 514
 Stochastic Simulation, 253
 Stokes Number, 946
 Stratified Flow, 510
 Structural Parameters, 163
 Structured Uncertainty, 1996
 Subcooled Liquid, 688
 Sulfiding, 314
 Sulfite Oxidation, 1384
 Sulfur Control, 167
 Sulfur Dioxide, 1215, 1878
 Supercritical, 1225
 Supercritical Carbon Dioxide, 1354
 Supercritical CCl₄, 669
 Supercritical Extraction, 658, 1740
 Supercritical Fluid, 9, 645, 1387

Supercritical Mixtures, 2059
 Supported Metal Catalysts, 1528
 Surface Coverage, 1931
 Surface Diffusion, 1031, 1094
 Surface Modification, 1031
 Surface Resistance, 150
 Surface Tension, 155, 862
 Surface Viscosities, 862
 Surface Voidage, 1919
 Surface, Heterogeneous, 723
 Surfactant, 1043
 Suspension, 123, 239, 1332
 Suspensions, 123
 Synthesis, 147
 Synthesis, Optimal, 163

T

Tar Molecular Weight Distribution, 790
 Temperature-Programmed Desorption, 263
 Tensile Strength, 447
 Thermal Cracking, 17
 Thermodynamic Consistency, 1887
 Thermodynamic Properties, 1973
 Thermodynamics, 1065, 1581, 1585, 1595, 1718
 Thermodynamics, Continuous, 574
 Thermodynamics, Solution, 1275, 1477
 Thermophoresis, 912
 Thickener, 229, 1931
 Thin Film, 140, 1511
 Thomas Solution, 1006
 Three Dimensional Flows, 2088
 Three Phase Flow, 2069
 Three-Phase, 1043
 Toluene, 1211, 1225
 TPD, 263
 Tracer, 1752
 Transients, Reactor, 1373, 1736
 Transport Processes, 1051
 Trays, Distillation, 1267
 Trickle Bed, 510, 980, 1027, 1361, 1850, 1931
 Tube Bundle, 107
 Tube Evaporators, 1539
 Turbine Impellers, 1332
 Turbulence, 514, 938, 946, 1030, 1039
 Turbulent Boundary Layer, 529
 Turbulent Heat Transfer, 502
 Turbulent Mixing, 932
 Turbulent Transport, 1789
 Two-Phase Flow, 107, 137, 510, 1030, 1392, 1850
 Two-Phase Flow, Inclined, 781

U

Ultrafiltration, 189, 1563
 Ultrapurity, 1581
 Ultrapyrolysis, 1417

Uncertainty, Design, 583
UNIFAC, 171
Upflow, Two-Phase, 1392
Uranium Recovery, 411

V

Vacancy Solution Model, 1887, 1931
Vapor-Liquid Equilibria, 574, 733, 825,
955, 1595, 2095
Variable Pairing, 849
Vertical-Blade Impellers, 932
Virial Analysis, 1207

Virial Coefficients, 1229
Viscous Wall Region, 529, 938
Void Fraction, 107
Voidage, Fluidized Bed, 1919
Volume Averaging, 679
Vortices, Counterrotating, 223
VSM Model, 1931

W

Water, 825
Waves, 493

Wax, 1937
Weldlines, 403
Wetted-Wall Column, 499
Wetting, Catalyst, 969
Wetting, Partial, 980, 1361
Wilson Equation, 1257
Wire Coating, 1732
Withdrawal, 1732
Wormholes, 45
Wrong-Way Behavior, 1663
Zeolite, 1185, 1207, 1211, 1713
Zinc Sulfide, 1128
ZSM-5, 1211

Titles

A

A priori Design of a Photo-Reactor for the Chlorination of Ethane	366
Absorption of Gases into Drops	329
Acceleration of the Chlorination of Alumina Using Supercritical CCL ₄	669
Accurate One-Dimensional Fixed-Bed Reactor Model Based on Asymptotic Analysis, an	1367
Adaptive Algorithm for Fitting with Splines, an	1722
Adsorption of Gas Mixtures: Effect of Energetic Heterogeneity	397
Analysis of Equilibrium Shift in Isothermal Reactors with a Permselective Wall	1493
Analysis of Multicomponent Diffusion in Pore Networks	1106
Analysis of the Effect of Internal Phase Leakage on Liquid Membrane Separations	753
Analytical and Preparative Electrophoresis in a Nonuniform Electric Field	483
Analytical Solutions to Fragmentation Equations with Flow	2073
Andreovich and Westerberg Box Display, on the	147
Anomalous Mass Transfer for Vapor Adsorption on Activated Carbon	1403
Application of Broyden's Method to Reconciliation of Nonlinearly Constrained Data	873
Application of Thin Films to Porous Mineral Oxides Using Two-Dimensional Solvent	1511
Arithmetic of PSA Process Scheduling, the	1910
Asymmetric Cellulose Acetate Hollow Fibers: Studies in Gas Permeation	417
Asymptotic Analysis of Gas Separation by a Membrane Module	1726
Augmented Back Equation of State for Polar Fluids	825
Augmented Back Equation of State, Part II: Polar Fluid Mixtures	1773
Auto-Catalytic Oxidation of Cyclohexane—Modeling the Reaction Kinetics	69
Autocatalytic Oxidation of Cyclohexane—Mass Transfer and Chemical Reaction	81

B

Bed-Immersed Object Heat Transfer in a Three-Phase Fluidized Bed	1043
Benzaldehyde Oxidation Catalyzed by the Wall of a Tubular Bubble Column Reactor	1034
Bifurcation Behavior of a Catalytic Reaction Due to a Slowly-Varying Parameter	383
Book Reviews	173, 1051
Bubble Characteristics in the Radial Direction of Three Phase Fluidized Beds	2069

C

Calculation of Infinite-Dilution Partial Molar Properties by Computer Simulation	1973
Calculation of Particle Dispersion Due to Turbulence in Elliptic Flows	514
Calculation of the Temperature Field in Injection Molding	1959
Carbochlorination of Dispersed Oxides in a Molten Salt Reactor	1086
Carbon Dioxide Absorption into Promoted Carbonate Solutions	922
Cavity Sound Resonance and Mass Transfer in Aerated Agitated Tanks	1922
Characterization of Fuel Cell Electrode Process by AC Impedance	1949
Characterizing the Product Crystals from a Mixing Tee Process	2063
Coating Flow on to Rods and Wires	1732
Coating Flows in a Nip Region and Various Critical Phenomena	456
Combined Surface and Pore Volume Diffusion in Porous Media	1094
Compression Zone Effect in Batch Sedimentation	229
Computer-Aided Planning of Purge Operations	558
Computer-Generation of Reaction Schemes and Rate Equations for Thermal Cracking	17
Condition Number Scaling Policy for Stability Robustness Analysis, a	1200
Confirmation of Heavy Component Rollup in Diffusion-Limited Fixed-Bed Adsorption	1913
Continuous Flow Gravity Thickeners, the: Steady State Behavior	239

Continuum Theory for Lumping Nonlinear Reaction Mixtures, a	1519
Conversion Distribution in Diffusion-Governed Chlorination of Poly (Vinyl Chloride)	1683
Countercurrent Gas-Liquid Annular Flow Including the Flooding State	389
Critical Impeller Speed for Solid Suspension in Mechanically Agitated Contactors	1332

D

Data Reconciliation and Parameter Estimation in Plant Performance Analysis	1
Deactivation Model for Bidispersed Catalysts	1903
Dead Zone in a Catalyst Particle for Fractional Order Reactions, on the	1916
Deconvolution of Noisy Tracer Response Data by a Linear Filtering Method	1752
Density Profiles of a Draining Foam by Nuclear Magnetic Resonance Imaging	2077
Design and Testing of a New Type of Falling Film Gas-Liquid Contacting Device	499
Design of Parallel Cascade Control for Disturbance Rejection	1833
Design of Tubular Flow Reactors for Monodisperse Aerosol Production	551
Diffusion in Packed Beds of Porous Particles	679
Direct Contact Heat Transfer with Change of Phase: Experimental Technique	1376
Discrete Structural Models and Their Application to Gas-Solid Reacting Systems	2030
Discretized Population Balance for Nucleation, Growth and Aggregation, a	1821
Dispersion Coefficient for Laminar Flow in Curved Tubes, the	2052
Dispersion in Laminar Tube Flow at Low Peclet Numbers or Short Times	1423
Dispersion of Viscous Liquids by Turbulent Flow in a Static Mixer, the	602
Dispersion-Free Solvent Extraction with Microporous Hollow Fiber Modules	177

Disproportionation of Toluene over ZSM-5 Under Near-Critical Conditions.....	1211
Distribution of Volatile Species in a Refluxing Polymer Colloid	733
Disturbance Sensitivity of Distillation Control Structures.....	853
Drop Formation from an Orifice in an Electric Field	1577
Dynamic Behavior of Supercritical Extraction of Kerogen from Shale	658
Dynamic Interaction Index Based on Setpoint Transmittance, a	849
Dynamic Response of Gravity Settlers to Changes in Dispersion Throughput.....	335
Dynamics of a Sodium Heat Pipe Reforming Reactor.....	743

E

Effect of Favorable Pressure Gradients on Turbulent Boundary Layers	529
Effect of Iron Impurity in Zinc Sulfide Concentrates on the Rate of Dissolution	1128
Effect of Methane and Hydrogen During Thermal Cracking of Light Hydrocarbons	321
Effect of Natural Convection on Spontaneous Combustion of Coal Stockpiles	353
Effect of Nonuniform Activity on Hydrodemetallation Catalyst	305
Effect of Viscosity on Concentration Polarization in Ultrafiltration, the	1563
Effectiveness of a Partially Wetted Catalyst for Bimolecular Reaction Kinetics	1361
Effects of Electrostatic Double-Layer Forces on Coalescence	140
Efficient Implementation of VLE Procedures in Equation Oriented Simulators.....	955
Electrochemical Measurement of Effective Diffusivity in Hall/Henry Electrolyte.....	1649
Electrophoresis in a Dilute Dispersion of Colloidal Spheres	1075
Energy Storage through Magnesia Sulfatation in a Fluidized Bed Reactor	519
Enhancement in Wall Mass Transfer Due to Motion of a Particle: Experimental Study.....	1177
Enzyme-Catalyzed Oxidation of Cholesterol in Supercritical Carbon Dioxide.....	1354
Errata	170, 349, 1030

Estimation of the Molecular Weight Distribution in Batch Polymerization	1341
Evaluation and Control of Particle Properties in Aerosol Reactors.....	1249
Excess Gibbs Free Energy of Aqueous Nonelectrolyte Solutions, the	1065
Existence of Ternary Interactions in Ion Exchange, on the	702
Experimental Study of Liquid-Liquid Flows in an Inclined Pipe	781
Experimental Support for Analyses of Coalescence	862
Extension of the Shape-Factor Method to Highly Polar Systems.....	1743

F

Falling Film Heat Transfer Analysis on a Bank of Horizontal Tube Evaporators.....	1539
Fixed-Bed Adsorption of Gases: Effect of Velocity Variations on Transition Types.....	996
Flexibility and Optimality of Distillation Column Design	144
Flocculation of Colloids Suspended in a Viscoelastic Fluid Undergoing Shear.....	1839
Flooding, Hold-Up, and Drop Size Measurements in a Multistage Column Extractor.....	283
Fluctuations in Highly Dilute Solutions.....	1581
Fluid Mechanics of the Planar-Flow Melt-Spinning Process	1673
Forced Periodic Control of an Exothermic CSTR with Multiple Input Oscillations	2041

G

Galvanic Interactions on Periodically Regular Heterogeneous Surfaces	723
Gas-Solid Reaction with Nonuniform Distribution of Solid Reactant, a	1878
Generalized Analytical Predictor	676
Generalized Correlation for Flashing Choked Flow of Initially Subcooled Liquid, a	688
Generalized Flow Model for Nonideal Gases, a	1568
Global Phase Behavior of Mixtures of Short and Long n-Alkanes	834
Green's Function Method for the Solution of Diffusion-Reaction Problems, a	347

Gross Error Identification in Dynamic Processes Using Likelihood Ratios.....	1321
--	------

H

Heat Capacity and Heat of Dissociation of Methane Hydrates, the	1468
Heat Effects in Gas Sulfiding of Hydroprocessing Catalysts	314
Heating and Evaporation of Turbulent Falling Liquid Films.....	502
Heuristic Synthesis of Non-Sharp Separation Sequences.....	763
High Pressure Solution Behavior of the Polystyrene-Toluene-Ethane System	9
Hindered Settling of Semidilute Monodisperse and Polydisperse Suspensions.....	123
Hydrodynamics and Mass Transfer on Three-Phase Distillation Trays.....	1267
Hydrogen Transfer in Slurries of Carbon Supported Catalyst (HPO Process).....	1691
Hydrolysis of Carbonyl Sulfide in a Gas-Liquid Reactor	158
Hysteretic Behavior of Pressure Drop and Liquid Holdup in Trickle Beds, the.....	1027

I

Impact of Model Uncertainty Descriptions for High Purity Distillation Control.....	1996
Improvement of Surface Transport Property by Surface Modification	1031
Influence of Secondary Flows on the Stability of Chemically Reacting Systems	209
Input/Output Linearization: A Nonlinear Analog of Placing Poles at Process Zeros	1803
Intermittency in Nonisothermal CSTR.....	333

K

Kinetics of Absorption of Oxygen into Aqueous Sodium Sulfite: Order in Oxygen	1384
Kinetics of Anthraquinone Reduction with Sodium Dithionite in Alkaline Medium.....	865
Kinetics of Ion Exchange Accompanied by Neutralization Reaction	1020
Kinetics of Spent Activated Carbon Regeneration	1656

Kinetics of the Dissolution of Alumina in Acidic Solution in a Flow System	2012
Knudsen Diffusion in Ordered Sphere Packings	1907

L

Laminar Newtonian Jets at High Reynolds Number and High Surface Tension	1559
Latent Heats of Supercritical Mixtures, on the	2059
Letters to the Editor	171, 1055, 1931
Linear Chemical-Physical Theory Model for Liquid Metal Solution Thermodynamics, a	1477
Liquid Mixing in a Tapered Fluidized Bed	1398
Lumping Nonlinear Kinetics	1299

M

Manufacture of Optical Waveguide Preforms by Modified Chemical Vapor Deposition	912
Mass Transfer and Bed Expansion of Solid-Slurry Fluidized Beds	1221
Mass Transfer and Solubility in Auto-Catalytic Oxidation of Cyclohexane	55
Mass Transfer from Dispersed Bubbles to Electrolyte Solutions in Packed Beds	1504
Mass Transfer in Falling Films: Influence of Finite-Amplitude Waves	493
Mass Transfer in the Absorption of Nitrogen Oxides in Alkaline Solutions	1190
Mass Transfer with Instantaneous Chemical Reaction in a Rigid Drop	694
Mass-Transfer Effects of Bubble Streams Rising Near Vertical Electrodes	1981
Mathematical Model for the A.C. Impedance of Semiconducting Electrodes, a	465
Mathematical Modeling of Boron Diffusion from Boron Oxide Glass Film Sources, the	1455
Measurement and Prediction of Entrained Flow Gasification Processes	435
Measurement of Droplet Interfacial Phenomena by Light-Scattering Techniques	1310
Measurement of Interfacial Tension of Immiscible Liquids of Equal Density	155

Measurement of Pore Size Distributions from Capillary Pressure Curves	684
Mechanistic Model for Two-Phase Bubble Flow in Vertical Pipes, a	1392
Micellar-Enhanced Ultrafiltration of Chromate Anion from Aqueous Streams	189
Micro-Dispersive Interfacial Mixing in Fast Polymerizations	1057
Minimum Reflux Behavior of Complex Distillation Columns	1164
Model for Molecular Weights in Vinyl Acetate Emulsion Polymerization, a	840
Model for the Foam-Bed Slurry Reactor, a	150
Modeling Catalytic Gauze Reactors: HCN Synthesis	1146
Modeling Chromate Ion-Exchange Processes	2019
Molecular Basis of Temperature Effects in Supercritical Extraction, the	645
Molecular Thermodynamics of Aqueous Two-Phase Systems for Bioseparations	1585
Molecular Thermodynamics of Partially-Ordered Fluids: Microemulsions	814
Monte Carlo Simulation of Supported Metal Catalyst Sintering and Redispersion, a	1528
Multicomponent Adsorption Equilibrium: Henry's Law Limit for Pore-Filling Models	2080
Multicomponent Efficiencies in Two Types of Distillation Column	618
Multicomponent Equilibrium Theory for Ion-Exchange Columns Involving Reactions	1615

N

Narrowing Diagnostic Focus Using Functional Decomposition	25
Network Model for Deep Bed Filtration of Solid Particles and Emulsion Drops, a	1761
New Apparatus for Measurement of Supercritical Fluid-Liquid Phase Equilibria	1387
New Liquid Membrane Technique for Gas Separation, a	1135
New Method for Determining the Intrinsic Deactivation Rate Constant	692
New Technique to Study Foam Flow in Porous Media, A: Radial Flow in Fibrous Mats	326

NMR Study of Mass Transfer in Granulated Molecular Sieves	1185
Non-Gaussian Dispersion in Model Smoke Stack Plumes	223
Non-Premixed Reaction in Homogeneous Turbulence: Direct Numerical Simulations	1039
Nonlinear Doubly-Diffusive Marangoni Instability, On	705
Nonlinear Dynamic Matrix Control for High-Purity Distillation Columns	1287
Nonlinear Fixed Bed Sorption When Film Mass Transfer and Sorption are Controlling	1747
Nonlinear Inferential Control	633
Nonrandom Factor Model for the Excess Gibbs Energy of Electrolyte Solutions, a	803
Normal Bubbling of Fine Carbon Powders in High Pressure Fluidized Beds	1395
Novel Hollow Fiber Reactor with Reversible Immobilization of Lactase, a	293
Novel Microreactor with Quench System for Kinetic Study of Propane Pyrolysis	1417
Number of Passage Distribution Functions, with Application to Dispersive Mixing	1943
Numerical Model of the Synthesis of Carbon Black by Benzene Pyrolysis, a	1813

O

On-Line Optimizing Control of a Packed-Bed Immobilized-Cell Reactor	626
Onset of Pulsing in Two-Phase Co-current Downflow Through a Packed Bed, The	1850
Operating Holdup on Film-Type Packings	870
Optimal Production of Secreted Protein in Fed-Batch Reactors	1550
Optimal Synthesis of Reactor-Separator Systems by a Nonlinear Programming Method	163
Optimizing the Production of Recombinant Proteins in Microorganisms	1233
Origin of Roll Waves in Horizontal Gas-Liquid Flows	1431
Oxygen Transfer between Metals and Oxygen-Ion Conducting Supports	195
Oxygen Transfer between Rhodium and an Oxygen-Ion Conducting Support	1048

P

Parallel Algorithms for Multicomponent Separation Calculations ... Parameters Limiting Sulfation by CaO.....	964 167
Partially Wetted Catalyst Performance in the Consecutive-Parallel Network.....	980
Particle Dynamics and Heat Transfer under Plasma Conditions.....	567
Particle Dynamics Near the Surface of a Horizontal Tube in a Gas-Fluidized Bed.....	1919
Percolation in Catalytic Porous Media with Application to Polymerization.....	698
Phase Equilibria of Continuous Fossil Fuel Process Oils.....	574
Pore Evolution and Channel Formation During Flow and Reaction in Porous Media.....	45
Pore Structural Effects in Catalytic Gasification of Coal Chars.....	426
Power Consumption in a Mixer.....	506
Prediction of Gas Hydrate Formation Conditions in Aqueous Electrolyte Solutions.....	1718
Pressure Swing Adsorption: An Experimental Study of Diffusion-Induced Separation.....	1409
Pressure Swing Adsorption: Effects of Incomplete Purge.....	1486
Protein Extractions with Hollow Fibers.....	130

Q

Qualitative Simulation of Chemical Process Systems: Steady State Analysis.....	1441
--	------

R

Rapid Coal Devolatilization as an Equilibrium Flash Distillation	790
Reaction Kinetics in Oxygen Bleaching.....	116
Recovery of Uranium from Seawater Using Amidoxime Hollow Fibers.....	411
Recursive Identification of Gross Errors in Linear Data Reconciliation, the.....	541
Recycle Continuous Flow Electrophoresis: Zero-Diffusion Theory ..	474

Redox Catalysis of Absorption from Reactive Bubbles Near Electrodes.....	1781
Relative Sensitivity: A Dynamic Closed-Loop Interaction Measure and a Design Tool.....	672
Representation of the Solubility Behavior of Amino Acids in Water ..	1257
Rigorous Thermodynamic Treatment of Gas Adsorption.....	1887
Robust Nonlinear State Feedback under Structured Uncertainty.....	1119
Rotational Effects on Natural Convection in a Horizontal Cylinder ..	1627
Rule-Based Mineral Sequences in Geochemical Flow Processes.....	1607

S

Scaling Rules for Isocratic Elution Chromatography.....	1006
Selectivity of the Chloride-Chlorate Reaction System in Various Reactor Types.....	1927
Semi-Analytical Expression of Effectiveness Factor for Michaelis-Menten Kinetics.....	1757
Separation of Solutes from Aqueous Solutions by Contained Liquid Membranes.....	1698
Separations in Conventional, Hyperlayer, and Steric Field-Flow Fractionation.....	341
Shear Enhanced Transport in Oscillatory Liquid Membranes.....	1709
Simple Procedure for Estimating Virial Coefficients from Burnett PVT Data, a.....	1229
Simulation of Batch Sedimentation with Compression.....	859
Simulation of Injection Mold Filling of Viscoelastic Polymer with Fountain Flow.....	94
Simulation of Particle Dispersion in a Two-Dimensional Mixing Layer.....	946
Simultaneous Removal of NO and SO ₂ by Absorption into Aqueous Mixed Solutions.....	1215
Size of Turbulent Eddies Close to a Wall, the.....	938
Sorption and Diffusion of Benzene in HZSM-5 and Silicalite Crystals ..	1713
Stability and Tensile Strength of Liquids Exhibiting Density Maxima.....	447
Steady-State Multiplicity and Partial Internal Wetting of Catalyst Particles.....	969
Stochastic Simulation of Aerosol Deposition in Model Filters.....	253

Stratified Flow Model for Two-Phase Pressure Drop Prediction in Trickle-Beds.....	510
Study of the Adsorption and Desorption of Multiple Adsorbates in a Fixed Bed.....	1861
Supercritical Catalytic Dehydrogenation of Toluene.....	1225
Supercritical Extraction of Crotalaria Spectabilis in the Cross-Over Region.....	1740

T

Temperature Distributions in a Laminar Flow Tubular Photoreactor.....	1381
Temperature-Programmed Desorption: Multisite and Subsurface Diffusion Models.....	263
Theoretical Study of Interfacial Mass Transport in Gas-Liquid Flows.....	1789
Theories of Precipitation Induced by Dissolution.....	2005
Theory of Design Reliability Using Probability and Fuzzy Sets, a.....	583
Theory of Transport Processes in Single Crystal Growth from the Melt.....	881
Thermodynamic Model for Predicting Wax Formation in Crude Oils, a.....	1937
Thermodynamics of Liquid-Liquid Equilibria Including the Critical Region.....	1595
Thermodynamics of Solutions with Solvent and Solute in Different Pure States.....	1275
Thermoflow Multiplicity in a Packed-Bed Reactor: II Impact of Volume Change.....	37
Three-Dimensional Extrudate Swell of Creeping Newtonian Jets.....	2088
Tracer Dispersion in Sintered Glass Beads with a Bidisperse Size Distribution.....	610
Transformations and Consistency Relations of Distillation Control Structures.....	1634
Transient Behavior of a Chemically Reacting System in a CSTR.....	1736
Transient Free Surface Flows in Injection Mold Filling.....	403
Transient Free-Surface Flows: Fluid Advancing through a Bed of Cylinders.....	1894
Transient Response of Continuous Flow Stirred Tank Polymerization Reactors.....	272

Transients in Tubular Reactors:
Comparison of One- and Two-
Dimensional Models1373

Turbulent Mixing in Baffled Stirred
Tanks with Vertical-Blade Impel-
lers..... 932

Two-Phase Flow Regime Map Pre-
dictions under Micro-Gravity..... 137

Two-Phase Pressure Drop in Cross-
flow Across a Horizontal Tube
Bundle..... 107

U

Unified Approach for Moments in
Chromatography, a.....2083

V

Virial Analysis of Methane Adsorp-
tion in the 5A Zeolite1207

W

Wrong-Way Behavior of Packed-
Bed Reactors: II. Impact of Ther-
mal Dispersion1663